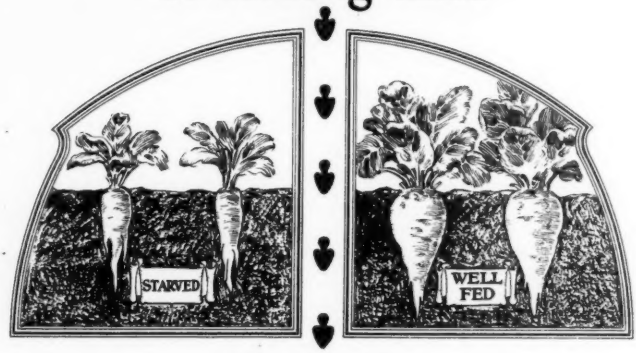
Better Crops

The Pocket Book of Agriculture.

October 1925 10 Cents

THIS TIME: Motorists – Yellow Means Look Out! — Big Business Apple Advertising — Foreign and International Agriculture

at lifting time



WATCH
for the starved beet

IF you were too busy last month to watch for signs of the starved beet, then you can quickly and easily make your check-up now. Notice the shape and size of the roots at lifting time. If the roots are distorted, split and scraggly, and puny and small in size, then you know they are suffering from potash-starvation. Starved beets pay you no profit. They don't even repay you for the time, work, and money you spend in raising them. And the loss you suffer is caused by lack of available potash in your soil.

Potash is very essential to the formation of sugar. Every healthy beet root uses *more potash* than nitrogen and phosphoric acid combined. A successful agriculturist for one of the largest sugar-beet factories recommends — with very few exceptions — the use of 300 to 600 lbs. per acre of a high analysis fertilizer which contains more potash than phosphoric acid. *For muck soils* 500 to 1200 lbs. per acre of 0-8-24, or 150 to 200 lbs. per acre of 0-0-50, is often recommended for profitable results.

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Better Crops

The Pocket Book of Agriculture

VOLUME V NUMBER TWO

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Gastronomically Speaking—we wish we might have attended this Better Biscuit Contest conducted by the County Agent of Anson County, North Carolina. The young lady, of course, was one of the winners.

PUBLISHED MONTHLY BY THE BETTER CROPS PUBLISHING CORPORATION, A SUBSIDIARY OF THE POTASH IMPORTING CORPORATION OF AMERICA, 10 BRIDGE STREET, NEW YORK. SUBSCRIPTION, $0.50 PER YEAR; 10c PER COPY. COPYRIGHT, 1925, BY THE BETTER CROPS PUBLISHING CORPORATION, NEW YORK.

VOL. V NEW YORK, OCTOBER, 1925 No. 2

On the Reasons *for* Striving

By Jeff McDermid

A CAPTAIN of a ship, tired, weary and worn with the rigors of a long, hard trip, and weak from countless mental conflicts with a band of hopeless *homos* who called themselves sailors, peered over his bridge dodger.

He was passing through the Panama Canal, and off the starboard about a quarter of a mile he saw a beautiful inland lake set like a turquoise in a field of green.

A charming place, thought the harassed Captain, so cool looking, clear, and peaceful. Soft-shaded trees dropped their fronds over the edge of its deep blue waters, softening its outlines. How different from his noisy, busy, ill-organized ship!

On the lake floated a single craft—a small, wooden dugout bearing a lone fisherman. The captain peered beneath cupped palm to sharpen his vision against the sun. The quiet fisherman was pulling in a fish.

"There's his supper!" chuckled the captain, then sat down, his mind a whirl of speculation and contemplation.

"There goes his supper!" he thought.

"Yes he will be as well fed tonight as I, and tomorrow too. A little fruit, some vegetables, and the crisp, brown, fried fish; tomorrow some small game, maybe a quail."

"No uniform to wear; quiet peaceful days and nights. Too lonesome? Probably has some

friends around the lake," he mused.

The captain, his mind already worn and torn with the exasperation of his ship and the futile attempt to man it with a crew of muddleheads, suddenly leaped to his feet with a cry.

"What's it all about!" he yelled to the emptiness of the bridge.

"Bah, that man lives as well as I—nay, better! Here I am 52; worked like a slave all my life; busy from dawn to dark; driven, driven, driven with cares and details and the press of existence! I eat, so does he. I sleep, so does he. Probably he sleeps better than I. He can only wear one suit of clothes at a time and that's all I can wear though I have twelve in the cabin below."

"And he, who dresses only to please himself, parades before no one, and needs but one comfortable suit regardless of style. On his back it goes until it wears out. Look at me in my gaudy uniform! The time I use to dress he utilizes in mild contemplation of this world—and in laughing at the rest of us madly struggling to get what he already has—happiness, peace, and quiet!"

THE captain, an intelligent man, now caught in the whirling images of his own thought, and entangled in the jungle of amazing ideas that raced through his brain slapped his thigh in bitterness.

"Bah!" he swore again.

"What good is this ship! Why do I rave and tear and try to organize these muddleheads? Of what use to carry tea and toys and furs and gewgaws across the seas? What is civilization anyway, and why? How are men any better off today than in the days of Pericles and Aspasia. How am I any better off than that lone fisherman in his dugout? Why all this striving?"

"That's it!" he exclaimed enraptured with the intensity of what, to him, were new and entrancing visions. "That's it! What is all this striving about?" At this point in his soliloquy the mate reported that they were nearing the locks. Muscles and brain-cells, trained through years of seamanship, snapped him back into a full, cold realization of where he was and what he was.

And with a sigh he became again the captain, 52, married, "successful"—gone his purple moment of violent reaction and struggle against 'things as they are.'

❖❖❖

AFTER a particularly pressing problem is solved, or at the end of an especially weary day, don't you often pause for a moment, sort of catch your breath and wonder what it is all about?

You do? So do I! We are brothers—souls in tune.

All of us are struggling, hurrying, pushing, jostling— elbowing rudely aside those who stand in our way. We are all going somewhere—but where? You and I, born against our will, and never to leave this world alive, should be friends. We *are* friends *now*. We have a common thought, a ground upon which our mortal minds meet.

We both are tied to the Wheel of Things.

But why do we struggle and strive? Why must we be forever pressing, boring, pushing on?

Why do we not rest content? Where and what is the heaven-born urge—that inward motor—which drives us forward so unceasingly?

Like the captain I sometimes become lost in speculation on this point.

After a day of amusedly watching the antics of petty mortals

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Potash Starvation Symptoms In *Alfalfa* and *Clover*

By *Emil Truog*, *Professor of Soils*
University of Wisconsin.

¶ This Badger Scientist has found unfailing symptoms of the lack of this plant, food in these legumes.

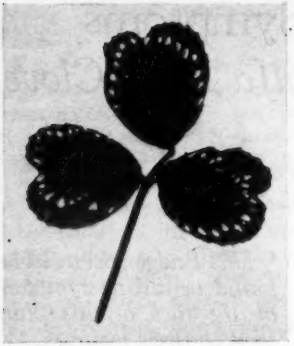
THE signs or symptoms which definitely indicate potash hunger in alfalfa and clover have been found. For many years efforts have been made by investigators to find the various symptoms in plants which might indicate the fertilizer needs of soils. These efforts have, as yet, been only partially successful.

While investigating the fertilizer needs of a large number of soils for growing alfalfa and clover by means of pot tests in the greenhouse, the writer noticed that wherever potash was the limiting element or factor, definite and characteristic white spots, the size of small pin heads, appeared on some of the alfalfa leaves. These white spots first develop around the border of the leaf and usually form a more or less definite pattern-like marking as shown in the picture. Later on, spots develop towards the center and the border becomes yellow, curls down, and dries up. The portion along the mid-rib is the last to be affected, as the picture clearly shows. Irregular white or gray blotches due to insects and diseases, that often appear anywhere on alfalfa leaves, should not be confused with these white spots which always appear on the border, first, more or less regularly placed. When potash starvation exists, it is always possible to find some leaves which show the symptoms so characteristically that mistakes should not occur.

The spots always appear on the older leaves. At first only a few leaves are affected. When potash deficiency occurs as the plant develops, the plant removes some of the potash from the older leaves and sends it to the newer growing portions. This is nature's provision in trying to make it possible for the plant to reach maturity and produce seed even though something is lacking.

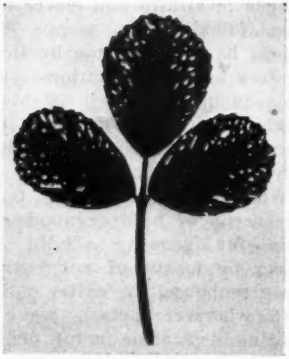
When these white spots are examined with a hand lens, there appears to be a depression wherever a spot exists. Evidently some of the plant tissue has broken down with the removal of the potash. Since the chlorophyll, the green colored material, disappears, it indicates that potash is closely associated with chlorophyll. It has been known for a long time that potash is essential in starch formation, which process is carried on by the chlorophyll.

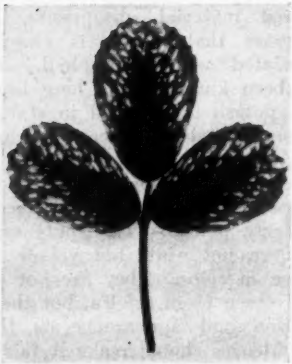
Potash starvation in clover is indicated by spots which appear similarly placed. The spots are, however, not white but yellow to brown in color. They are not as easily seen as in alfalfa, but their position and appearance on the older leaves should make it fairly



¶ *First Stage.—White spots appear around the border of older leaves in pattern-like arrangement.*

¶ *Second Stage.—The white spots invade towards the center but never appear on the midrib.*





¶ *Third Stage.—The border of the leaves turns yellow, dries up, and turns under.*

easy to distinguish them.

Wherever potash was applied to potash deficient soils in the greenhouse tests, these spots did not appear. The fertilization of affected plants with potash, also caused the spots to disappear. Upon investigation, these same symptoms were found in the field, and here, as in the greenhouse, potash fertilization caused the spots to disappear and the crop to improve.

It should be noted that these symptoms only appear when potash is the limiting factor in plant growth. If, for example, a soil needs both phosphate and potash, but needs phosphate more badly than potash, then symptoms of potash starvation will not make their appearance until phosphate has been added to the soil. After adding the phosphate, potash becomes the limiting factor, but before this there is ample potash to supply what growth the plant can make with the limited phosphate supply. This is just what one would expect after thinking about the matter. It makes possible a beautiful class-room demonstration of the operation of limiting factors in plant growth.

The importance of potash fertilization for alfalfa, clover and other legumes is, as yet, not fully appreciated in this country. Many failures with alfalfa and clover are due to a lack of available potash. The importance of lime and phosphate has been quite fully emphasized. The same cannot, however, be said in regard to potash. Few people realize that alfalfa and clover hay contain as much potash as they do lime. A ton of alfalfa or clover hay requires as much potash as there is in 75 pounds of muriate of potash. Is it any wonder that alfalfa and clover often suffer because of a lack of available potash? It should be emphasized that alfalfa, clover, and most legumes, are "potash loving," as well as "lime loving."

One reason why farm manure has won favor in starting alfalfa and clover is because of its content of readily available potash as well as phosphate. A ton of farm manure contains about 10 pounds of potash. It takes about four tons of farm manure to supply the potash needed by a ton of alfalfa or clover hay. A dressing of farm manure supplies sufficient potash to start the alfalfa, but unless the application is repeated, the crop soon suffers. When potash is needed for alfalfa and clover, it is more economical to use a potash fertilizer than farm manure. The farm manure contains considerable nitrogen, which is largely wasted when applied to alfalfa or clover, but which is of great value when applied to corn and other non-legumes. It is well known that clover no longer grows as it should, and that alfalfa is not a success on some fields.

TO find how generally alfalfa is benefited by potash fertilization on typical Wisconsin soils, tests were carried on in the greenhouse with 20 soils from various parts of the State. On 15 of these soils the alfalfa responded to potash fertilizer, and on all of the soils it responded to phosphate fertilization.

That clover no longer grows as it should, and that alfalfa is a failure on many fields, is well known. The four big reasons why this is the case are as follows: (1) A lack of lime. (2) A lack of phosphate. (3) A lack of potash. (4) A lack of inoculation.

Silt loam and clay soils, if comparatively new or if farmed under a good rotation and treated regularly with farm manure, are least

(*Turn to page* 35)

¶A coming event of interest to all agricultural workers.

World *Soil Experts* Will Gather *Here*

THE United States has been picked to entertain the First International Congress of Soil Science. In May, 1927, delegates from every country in the world, which has made a scientific study of its soils, will meet in Washington, D. C.

Growing out of a movement which started in 1909, this meeting assumes considerable importance in the light of the growing necessity for studying soils from an international viewpoint.

The first meeting ever attempted along this line was held in Budapest in 1909. It brought together a number of technical experts from different nations who were interested in the scientific and practical side of field geology. The following year a second conference was held at Stockholm. One hundred and seventy delegates representing 19 nations met to consider geological conditions and studies made on the subject in the various countries, the preparation of soil extracts for chemical analysis, and questions of nomenclature.

The third conference had been scheduled for St. Petersburg in 1914, but because of the war it was not held until 1922 in Prague. At this meeting, in addition to the subjects and commissions appointed at Stockholm, the matter of mechanical and physical analysis of soil, and soil mapping was taken up and respective commissions appointed.

It was decided to hold the fourth conference in Rome in 1924. Some 22 states and 60 Scientific Institutes announced their intention of sending their official representatives to the Congress which was supported by about 400 soil experts from all parts of the world.

This meeting had the patronage of the International Institute of Agriculture and became an important international scientific assembly, famous because of the scientific reputation of its members. The Congress opened in the presence of the King and other political and scientific personalities and the American, Belgian, Czechoslovakian, Danish, Egyptian, Finnish, French, Georgian, Japanese, English, Irish, Indian, Yugoslavia, Lettish, Norwegian, Dutch, Polish, Rumanian, Russian, Spanish, South African, Swedish, Swiss, German and Hungarian delegates.

Lectures were given and the various commissions reported. On the last day of the meetings, the foundation of the International Society of Soil Science was definitely laid.

The object of the Society as outlined is to promote the study and progress of the fertility of a soil in connection with its formation and environment. This is to be accomplished through the organization of congresses and meetings, the constitution of special sections and commissions, the publication of a review and the

(*Turn to page* 41)

¶Uncle Sam makes it easy to find your way home.

MOTORISTS:
Yellow Means Look Out!

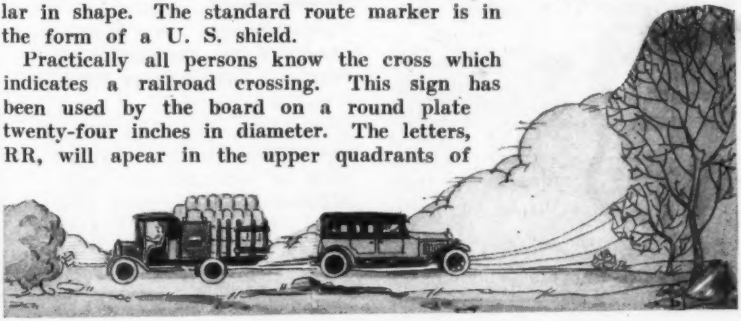
By Ted Butlar
Washington Correspondent

ON THE United States highways from now on, if the various States adopt the suggestions of the Joint Board on Interstate Highways, yellow will be a dangerous signal. The board, which was appointed last winter by the Secretary of Agriculture from State highway departments and the Bureau of Public Roads, recently made its recommendations which are intended to add to the safety and convenience of interstate travel by motor car. It is recommended that the various signs which have been decided upon by the Board be adopted by all the States for these interstate roads.

In addition to words, letters, figures and symbols and the distinctive color, signs will be of such shapes that even a person who is color blind or who cannot read will soon learn the meaning of all the danger signals.

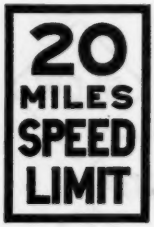
There will be two classes of signs, one warning of dangers of various sorts, and the other giving directional and other information. The danger signs will have a yellow background with black letters and symbols; the signs in the other group will have a white background with black letters and in most cases will be rectangular in shape. The standard route marker is in the form of a U. S. shield.

Practically all persons know the cross which indicates a railroad crossing. This sign has been used by the board on a round plate twenty-four inches in diameter. The letters, RR, will apear in the upper quadrants of



the design. In places where there is great danger on the highway a stop sign will be placed. This sign is twenty-four inches in diameter and will have the word, STOP, in black letters on the yellow background. Its characteristic shape, which is easily recognized, is octagonal.

The diamond shaped yellow sign will be used to indicate narrow bridges, curves, steep hills, and other places requiring considerable caution. The nature of the danger will be described in black letters on a yellow background. The sign will be twenty-four inches on each side. Signs twenty-four inches square with a yellow background will be used to call attention of motorists approaching schools, hospitals, and churches.

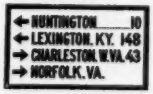


The standard route marker, the shield, will be sixteen inches vertical from tip to tip. In the top section with a white background will be the name of the State in black letters. In the lower section will be the initials U. S. and the route number.

When such signs are erected before forks or junctions with other roads a smaller shield, nine inches from tip to tip vertical, will be placed just below the larger route marker to indicate whether the route follows the left one or the right one. The small shield will bear either an R or an L. The distance to places on the route will be indicated by rectangular white signs with the names, distances and arrows in black. Towns on side roads with the distances to them will be indicated by signs placed at the branching points but no arrows will be used as the position of the sign will indicate the direction.

Other rectangular signs will carry the names of prominent features crossed or passed by the road, such as creeks, rivers, lakes, etc. There will be notification signs in black and white wherever the speed limit changes.

These road signs were the result of discussions held by the Joint Board on Interstate Highways at cities in all sections of the country and the final session at Washington, D. C. A committee of the board is now working on a numbering scheme and it is expected that maps of the routes selected with the numbers indicated will be available in a relatively short time. Thomas H. MacDonald, Chief of the Bureau of Public Roads, is Chairman of the board.



These suggestions tie up closely with the growing sense of regarding highways in more than a local, state or even national light. In addressing the delegates about to leave for the Pan American Council of Highways at Buenos Aires, October 3-13, Secretary of

(*Turn to page* 36)

A Round-up On Peat Soils

¶ The Editor reports a real get-together of scientists, farmers, and agricultural business men.

THE American Peat Society held their nineteenth annual convention in joint session with the Michigan Muck Farmers' Association at East Lansing, Michigan, September 8-12.

Before a goodly representation of scientific research workers, commercial men, and farmers, the latest problems in securing good yields on muck soils were generously discussed. There are in the United States some 75,000,000 acres of these dark colored organic soils. From 2-3,000,000 acres are found within the boundaries of the "Wolverene" state, many of which are playing a tremendous part in the state's agricultural program.

It was in this light and in the light of the use to which many more acres will be put as increasing population demands that interesting talks and field trips were given.

The convention was opened by Dean Robert S. Shaw of the Michigan Agricultural College and Experiment Station. After welcoming the visitors, Dean Shaw told something of the work being carried on by the station and the $250,000 which is being spent on research work.

Dr. R. M. Snyder, bacteriologist of the Michigan State College, was the next speaker and showed the use of manures in introducing bacteria into peat to hasten the decomposition and consequent liberation of considerable plant food. Peat must be well decomposed before it can be used for producing crops. Fine work in this connection is being done at Michigan by using a series of cylinders.

Yellows, a permanent soil sickness of celery and other muck soil crops, was described by Professor R. Nelson of the botany department. He explained that growers in Ohio, Indiana, New York, New Jersey, Canada, Colorado, and California, as well as Michigan were experiencing difficulties with this disease spread by an organism which lives indefinitely in the soil and is carried about by floods and various other ways. Disease-resistant varieties are being developed as one means of control.

ANOTHER pest in the shape of the mint flea-beetle was the subject of Professor L. G. Gentner's talk. This Michigan entomologist has done some important work in studying the habits of the tiny insect which has wiped out mint fields in some sections of the state. Because of the orderly way in which the beetles go about their invasion of a new field of mint, Mr. Gentner has found the use of an insecticide

around the edges of a field a very satisfactory control.

Dr. J. W. Crist of the horticulture department showed as the result of experimental work in the greenhouses that soil acidity in itself is not necessarily harmful to plant growth. The harmful effect is undoubtedly due to toxic properties in many acid soils—that when these toxins are removed normal crop growth is again obtained.

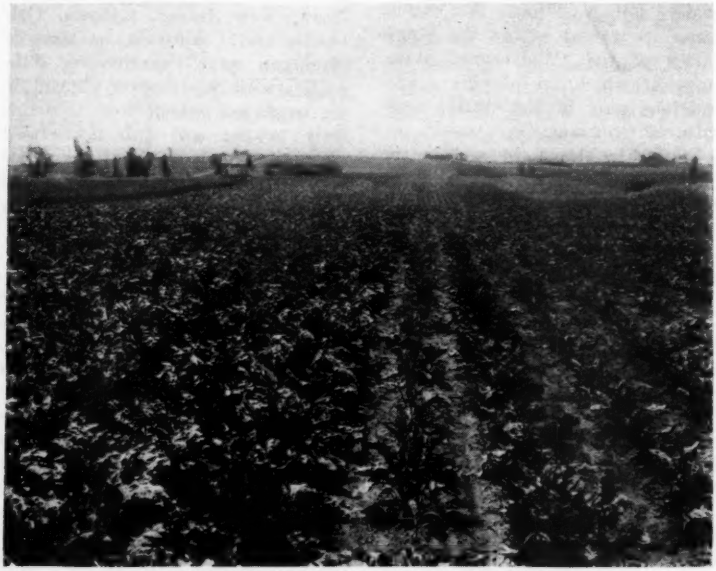
The use of phosphates was shown to be effective in precipitating the toxins. The use of lime, especially in excess, reduced the permeability of the membranes of the plants.

It was brought out in a subsequent discussion by Dr. H. J. Wheeler that this work confirmed the researches of the Rhode Island Agricultural Extension Station and also that the most economical method of treating many acid soils is to use both phosphates and lime in the rotation in preference to large amounts of lime and no phosphates.

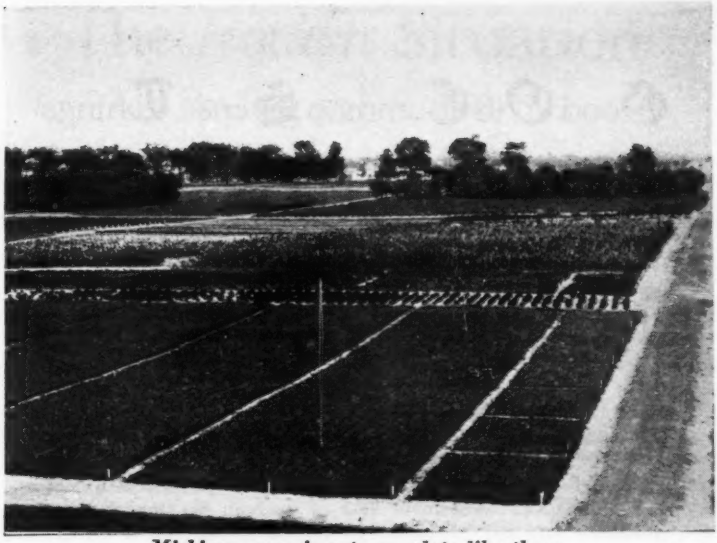
Dr. H. J. Wheeler of the American Agricultural Chemical Company, Boston, was called upon but said that he came to discuss the papers rather than to make speeches. In commenting upon Dr. Crist's investigations, he expressed his interest and declared that we have only scratched the surface as far as the relation of plant feeding to plant diseases is concerned.

General fertilizer recommendations for muck soils were discussed by Ove F. Jenson of the Soil Improvement Committee, National Fertilizer Association, Chicago. He mentioned the formulas recommended and brought out the importance of further study to find the best amounts of fertilizers to apply.

In his opinion there is the tendency to use less than the amount which will give the maximum returns. In 1919 in Michigan there were 121 fertilizers grades being sold by various companies. The movement was started to standardize these fertilizers and re-



Commercial fertilizer spoke for itself here



Michigan experiments on plots like these

duce the number. Now there are only 12 or 14 being used. These reductions operated to reduce manufacturing costs and ultimately the costs to the consumers.

He also pointed out other peat problems which might be profitably worked out, touching upon the tendency in plant health work to solve the problem from a nutritional viewpoint rather than from plant breeding alone. The question of environment is becoming more important and scientists are paying more attention to it.

In his address, President J. H. Beattie, Bureau of Plant Industry, Washington, D. C., outlined the purpose of the society as investigational work and the dissemination of the knowledge to people interested in peat. This work has in mind only the use of peat for producing crops, since peat as a fuel in this country is not to have any particular importance while oil and coal are so cheap.

He touched upon the accomplishments and needs of the industry and the fact that what has been accomplished is nothing in comparison to what there is to be done. However, until some farmers take a greater interest in their peat and learn how to farm it, he believes that much of the peat land now being used would be much better under water to preserve it for the coming generations.

Dr. Paul M. Harmer of the Michigan Soils department showed from a historical viewpoint that we have made progress with muck soils. For instance in 1900 comparisons of stable manure and commercial fertilizers showed that the manure was more profitable. That was because commercial fertilizers high in phosphorus and low in potash were used. Now they have profitably substituted commercial fertilizers for manure.

With tables, Mr. Harmer then showed the results of numerous experiments with different fertilizer treatments having a marked effect upon the quality, as for instance with sugar beets where

(*Turn to page* 38)

Good Old Common Sense Things

By E. W. Howe

THERE are so many true and important things to learn in fighting for a worthy place in life that I sometimes believe the Old Classics may be safely neglected.

Who has not heard vaguely of the Hall of Valhalla? It is one of the things the old classics tell about. Valhalla was a special heaven provided for rowdy heroes: those who died peaceful and natural lives were excluded. In Valhalla the heroes lived on the flesh of the boar Schumuir, always abundant for all, for although this boar was cooked every morning, he became whole again over night.

When the heroes of Valhalla were not feasting, they engaged in fighting. Every day they rode out into court or field, and fought until they cut each other to pieces. This was the Joy of Valhalla of which you hear. But when meal time came, the heroes recovered from their wounds, and again feasted on the flesh of that wonderful boar.

Another favorite quotation from the old classics is: "To Pile Ossa on Pelion." In the ancient times of which only poets know about, there were giants: it is related one of them was so big that when he lay down to rest, he covered nine acres. These giants became jealous of the gods who lived in the sky, and determined to climb up to destroy them. For this purpose they piled the mountain called Ossa on the mountain called Pelion.

To speak of the Riddle of the Sphinx sounds as though the riddle is life. But it is not. In the old classical days the city of Thebes was afflicted with a monster which infested the highroad. It was called the Sphinx, and arrested all travelers who came that way, proposing to them a riddle, with the condition that those who could answer it should pass safe, but those who could not should be killed. Many were slain before Edipus guessed it. The Sphinx was so mortified at the solving of the riddle that she cast herself down from the rock, and perished. The great stone sphinx near the pyramids at Cairo, in Egypt, celebrates the foolish story.

Let's learn the good old common sense first: if we neglect anything, let it be foolish tales we can get along without. The invented stories in "The Arabian Nights" are poor stuff compared with the true things in life.

The *Potash* Situation

By *George J. Callister*

¶A talk given at the Annual Convention of the American Peat Society.

IN general this talk will be divided into two main sections—first, the potash situation from the scientific viewpoint, and second, from the production and sales end.

The latter viewpoint, after all, is probably of more practical interest, at least to the farmer because it is a big factor in his profit, which is the final object in the use of potash.

Going to the scientific viewpoint first, it has been my privilege to study experiments on the use of potash in northern Europe as well as in this country. I have met a great many men who are doing experimental work on peat and muck soils. From that experience one idea stands out and that is that now we have definitely started a new era in agricultural research and experimentation.

In the past we have done experimental work to find differences which we can see with the eye. We measured the gross yield only. That day is past. We now realize that there are differences which cannot be seen with the eye. They must be determined by the aid of the balance, chemical analysis, microscopic work, and other means.

The outcome is that we are developing a mathematical viewpoint. We are doing this not because we elect to, but because economic pressure is compelling it. The increase of land values and the general increasing cost of production are not only forcing higher yields but better quality.

In this connection potash has a very important part to play. Its function in the formation and distribution of the carbohydrates in the plant, its role in producing greater feeding values of many crops, and the building of a plant's resistance to disease have all to be worked out to a much finer degree.

Because there may be at the present time an over-production in some places on mineral soils, there is, perhaps, a feeling that there is less necessity to work on muck soil problems. We think we can go on and on and when we finally need to use all of our muck soils, all we have to do is go out, spread around a bag of fertilizer, and get a bumper crop.

But this is a dangerous attitude. In it we are apt to lose sight of the time which it takes to determine the best systems of management of the great variety of the muck and peat soils of the United States. The first point, therefore, which I wish to make is the urgent necessity for supporting all experiments with fertilizers on these soils.

There are numerous formulas recommended for peat and muck soils of various types. The four most popular formulas are:

0— 8—24
0—12—12
0—10—10
2— 8—16

(*Turn to page 42*)

Big Business *Apple* Advertising

By C. L. Burkholder
Purdue University, Lafayette, Indiana

¶A Hoosier farmer makes advertising pay

HUNDREDS of orchardists are failing to utilize, to the fullest extent, the dooryard trade possibilities of their own communities. A few years ago local trade was limited to the radius which Old Dobbin could conveniently trot in an hour. Now, apple advertising has been shown to pay over a 50 mile radius.

It is very true that the locality in which an orchard is situated to a considerable extent governs the possible volume of business that may be developed by proper publicity. On the other hand, the possibilities in this type of marketing are seldom made the most of.

The story of what one Indiana grower was able to do in the way of marketing his entire crop of apples at the packing shed last year is well worth careful study and suggests many possibilities and variations that might be financially worth while to other growers.

Gafin Berg of Newcastle, Indiana, purchased an orchard several years ago, which was composed of some 25 different varieties of apples. At first the crop was harvested, barreled and stored, and very little attention was paid to developing a local trade for his fruit. As the orchard was in a somewhat neglected condition to begin with, there was a rather high percentage of cull apples to be disposed of. This in the end proved to be very

Wise advertising

fortunate as it led to the purchase of a small hydraulic cider press, and some sweet cider was sold and the rest made into vinegar. The vinegar brought 25 to 50 cents a gallon, while the fresh cider sold at 50 cents to a dollar a gallon net.

It was evident from the first that it was much more profitable to sell fresh cider and a moderate advertising campaign was initiated to increase cider sales. Cider customers wanted apples as well

and a good trade was gradually developed, which increased almost directly in proportion to the extent and effectiveness of this advertising campaign.

MR. BERG did not have the good fortune to be located on a main State highway, so one of the first steps was to put up a net work of signs telling what he had to sell and how to reach his side-road orchard. These signs were painted all in one color and some were of very unique design. One of the most effective types was a batch of old stove-in row boats picked up at a town park in the county. These boats were painted yellow, mounted on stilts along main travelled highways, and pointed in the direction of his orchard. On the side was painted in large letters, "Sail to Berg's for Apples and Cider."

Who could pass that kind of advertising without remembering that the Berg Fruit Farm was located in a certain direction and was the place to lay in a supply of cider and apples? Several large arrows 35 feet long were built at the turns in state highways where auto lights made them jump out of the night with the same cider and apple suggestion and direction. Every road for miles around was placarded with smaller signs of many designs all painted one color. This type of advertising lasts the year around.

The expense is not a big item, as much of the work can be done inside during bad weather and put up at odd times during the year.

Of course, about the time the fall crop of apples was ready to harvest and plenty of good high quality cider was available came the time to make the big advertising drive on the mass of possible local trade within a 50 mile radius. The question was how to tell this apple and cider story to every single family in this big circle.

(*Turn to page 42*)

Mr. Berg uses signs which demand attention

¶It has been a real task to pick a winner for the contest this month. Almost every manuscript submitted had an idea or two worthy of consideration. We wish that we might make up a composite article. In choosing E. R. McIntyre to receive the prize, the judges felt that perhaps this farm paper editor saw the county agent in a little different light than the agent sometimes sees himself. It helps to see ourselves as others see us. While Mr. McIntyre has never been a county agent, he knows personally every county agent in the Badger state and a great many in the adjoining states. In addition he has a wide acquaintance with farmers and their problems. Honorable mention must be given the answers of Wm. W. Bathlot, H. E. McCartney, Mrs. Margaret H. Stone, J. Lewis Merritt, Paul Tabor, T. L. Britton, B. M. Drake and H. W. Fristoe.

How Can *County* Agent Work Be *Improved?*

Prize-Winning Article

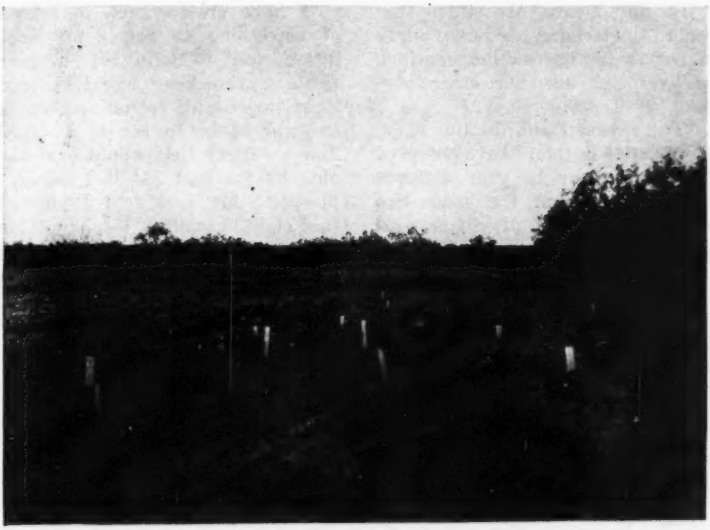
By E. R. McIntyre
Editor, Wisconsin Farmer

THERE is a county agent of my acquaintance who makes his work take instant effect and gets action out of his farmers because he is six feet and six inches tall and weighs 300 pounds. Farmers of his county get one glimpse of his mighty bulk, see his engaging smile, and get his deadly iron grip—and then promptly bury any prejudice or objection. This giant county agent has brains and common sense, however, and so he follows up force with reason, and hence his programs are valuable.

There is another county agent in my state who is small of stature, fine-boned as a woman, and modest in approach. He may not "sell well" at first acquaintance, but he is "all wool" and wears like iron. Why? Because he is one of the best informed and most broadly educated and appreciative of any county agent here. He neither bluffs nor dodges He knows his stuff. He does not try to make up for a lack of concrete knowledge by using either "bull" or bulletins.

No county agent in a general farming section can succeed if he is too much of a technical talking man or too much of an educated specialist. I know two potato specialists, two orchard specialists, and three expert cattle judges who have failed as county agents.

(*Turn to page* 40)



Seeds from all parts of Texas and from Egypt grow side by side under same conditions

Twenty Varieties *of* Cotton *on* One Farm

By *Hubert* N. *Cooper, Texas*

¶ This Texas farmer means to find the best variety for his section.

TWENTY varieties of cotton have been planted on one farm in the western part of Texas by a farmer who is desirous of helping his fellow farmer in raising the best kind of staple. The test is being made near Abilene, Texas, and the farmer who is making the test is Felix Y. Little.

Mr. Little has been very successful in the raising of cotton, even in the years when there is a shortage of moisture. His experiments have been made with the cotton which grows best in the parts of the state where there is much moisture and where there is more or less of a shortage each year.

By this means Mr. Little expects to determine the best variety of cotton for the section in which he lives and also for other portions of Texas.

"The reason I am planting these 20 varieties is this: I have observed that from year to year farmers continue to plant the same two or three varieties of cotton and it has been hard to convince them to try just one kind that they had not planted before. They did not seem to care to plant any cotton except the varieties they had always planted.

"I have always been in search of something to better my condition and to help my brother farmer. Two years ago I ordered eight varieties of cotton and began to experiment to see if I could find a variety that would beat the old kinds that I had always planted. My first year I planted the eight varieties side by side and made daily observations and noted the difference in the different varieties, such as the fruiting of the cotton, and also the period of the first blooms.

(*Turn to page* 43)

Mr. Little carefully watches each variety in its competitive growth to win his favor

Fertilizers for The ORCHARD

By A. F. Farley

Pomologist, New Jersey State College of Agriculture

¶A word in advance on the orchard diet.

HIT and miss methods of using fertilizers on orchards are generally a waste of money. One should know the kind and amount of wood growth made each year, the color and general condition of the foliage, the age of the trees, and the behavior of any cover crops that may be planted.

Furthermore, the type, general condition and previous treatment of the soil all have a direct bearing on orchard fertilization. For example, an orchard on rich truck soil requires an entirely different fertilizer treatment than one on poor, worn-out soil.

General fertilizer recommendations for orchards are not very satisfactory for they do not always meet the requirements of the individual orchard. However, the following recommendations are made for the average apple orchard: Nitrate of soda or sulphate of ammonia—trees one to six years old, one-half to one and one-half pounds per tree; trees seven to fifteen years old, 100 to 200 pounds per acre; trees over fifteen years old, 150 to 500 pounds per acre; for peach trees, one to three years old, one to one and one-half pounds per tree; for peach trees over four years old 150 to 250 pounds per acre.

Acid phosphate is the most economical source of phosphoric acid for orchards and should be used at the rate of 400 to 600 pounds per acre. On light ground, muriate of potash at the rate of 100 to 150 pounds per acre may be beneficial.

Generally speaking, fertilizer applications should be made early in the season. This applies particularly to nitrogenous fertilizers used in orchards of low vigor, but is not as important in orchards where the trees are vigorous or when acid phosphate and potash are used. All applications of acid phosphate and potash, together with at least half of the nitrate of soda or sulphate of ammonia, should be broadcast over the entire area occupied by the trees.

THIS tends to improve all of the soil and make possible the growing of better cover crops during the early life of the orchard. Applications to a limited area around each tree are advisable only with young non-bearing trees or where heavily fertilized cultivated crops are being grown between the trees.

Farm *Economics* Gets a *New Chief*

By C. E. Gapen

Chief, Press Service, U. S. D. A.

BECAUSE of the great importance of a thorough understanding of economic problems in their application to agriculture and the rapidly increasing interest of farmers and others in the results of economic investigations, the selection of a new chief for the Bureau of Agricultural Economics of the Department of Agriculture is of interest to all readers of BETTER CROPS. The last week in August Secretary Jardine announced that Thomas P. Cooper, Dean of the College of Agriculture, University of Kentucky, had been picked to take the place of Henry C. Taylor. The new chief took up his duties at Washington on September first.

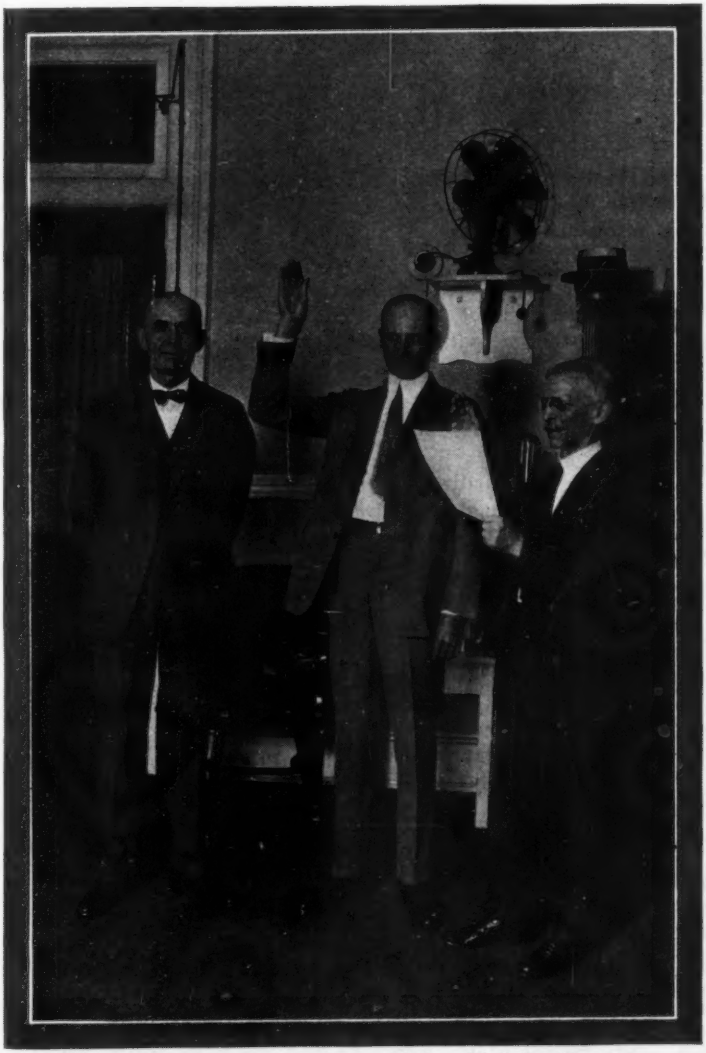
Dean Cooper came to the Department of Agriculture with an excellent record as an investigator, organizer, and executive. He is a lean, keen-eyed, effective-looking leader who gives the impression that he can soon get a grip on one of the largest bureaus in the Government with connections in all parts of the country and in many parts of the world. So far he has had nothing to say about any particular ideas he may have regarding the operation of the bureau, preferring to wait until he becomes well acquainted with the machine. Its complexity is indicated by a list of some of the subjects covered by its activities: costs of production and marketing, farm organizations, agricultural finance, farm labor, agricultural history and geography, land economics, marketing and distribution, insurance, rural life problems, crop statistics, food products inspection, crop reports and forecasts, and the enforcement of a number of important laws.

Thomas Cooper started making his own way as a farm hand in western Minnesota and in North Dakota. He was born at Pekin, Illinois, in 1881. He was a graduate of an agricultural school in Minnesota by 1902, and six years later had the degree B. S. A. from the University of Minnesota. In 1914 he was made Director of the North Dakota Agricultural Experiment Station. In 1918 he went to Kentucky as dean of the College of Agriculture of the University.

This is not the first time Dean Cooper has been invited to come to the Department of Agriculture. Four years ago Secretary Wallace asked him to head the Bureau of Markets which later was merged with Crop Estimates and the Office of Farm management to form the present Bureau of Agricultural Economics. Still earlier Secretary Houston had asked for his services when the Bureau of Markets was formed. He refused in both instances.

Dean Cooper has given much of his attention to problems of farm management, farm organizations, and agricultural economics. He is, of course, particularly well acquainted with these problems in the Northwest and the Upper South.

Better Crops' ART GALLERY of the month



Thomas P. Cooper swearing a little aided by Secretary Jardine and Chief Clerk R. M. Reese

The Editor's

FOREIGN AND INTERNATIONAL AGRICULTURE

With this issue we are starting a new section. It is to be devoted to news and articles on foreign and international agriculture.

This section is not introduced solely because we think it is a good feature to add but because readers have suggested it. We often too, receive requests from people going abroad for information on how to see places of interest, especially the potash mines and works.

And the fact that many more agricultural workers are going abroad every year is of the greatest importance. The movement is changing the meaning of the word "foreign," giving it a more friendly sound.

The more we meet each other — and the more accurate the information we have, the more friendly foreign will become, because it is based on knowledge and not sentiment only.

A big step in this direction is the International Congress of Soil Science to be held in Washington. Delegates will be here from many foreign countries — from across the Atlantic and the Pacific. Many of them will see and study American agricultural conditions for the first and perhaps only time.

Let us make sure, so far as we can, that the knowledge and impressions of our agriculture that they carry back with them be sympathetic and accurate.

We have discussed the purpose of this congress in this issue. And it will be our purpose to give this congress all the space necessary for a proper account of its activities.

BETTER MUCK LANDS

One of the most important of our national societies devoted to the progress of agriculture is the American Peat Society. In the Middle West there is a Sister Society — the Michigan Muck Farmers Association. Both these organizations are doing excellent work. They are devoted to the conservation and profitable use of one of our national assets — some 75,000,000 acres of muck and peat soils.

These two societies have just held their 19th annual convention. An account of the meetings and the tours which followed will be found on other pages of this issue.

It will be observed that many important problems in the management of peat and muck soils were discussed. The addresses showed that many workers are faithfully studying these problems for us and that we know a great deal about crop production on muck soils.

If, however, the value of this vast acreage of valuable land is to be conserved and brought to profitable use, there is yet a great deal of research work to be done. There is a danger in thinking the problems have all been solved — that we know all we need to know about muck soils.

But what do we really know of systems of management — the time and frequency of plowing, rolling and cultivation, and especially the most profitable amounts of commercial fertilizer per acre to use?

We do not know enough about drainage, frost occurrence, the best mixtures of grasses and clovers for feeding values and many other matters.

There are no short-cuts to solving these problems. Their solution will require time and hard work. And on the solution of such problems depends the prosperity of farmers in muck soils and the proper use of a national asset.

Because one of the most important purposes of these Peat and Muck Societies is to cooperate in solving these problems — their work deserves our continual interest and strongest support.

DEEP PLOWING

Merely scratching the surface — whether it be the surface of our job, our friendships or our land — will never get any of us very far. Deep plowing for Better Crops receives this interesting comment from Arthur Brisbane in the San Francisco Examiner:

> "A valuable bust of George Washington is turned up by the plow of a New Jersey farmer plowing deep. Even more valuable things, namely, better crops could be turned up if the plows could go deeper into the soil. The old German law, as you read in the second part of Faust, gave the farmer any treasure turned over by his plow. If he dug and found treasure it belonged to the emperor. But whatever his plow turned up was his. That was wisely planned to encourage deep plowing."

A COLORADO *Tragedy*

¶ Youth comes smiling through

ALLYN H. TEDMON, county agent Arapahoe county, Colorado, sent us this good picture together with a little story about the boys. It seems that they are real hustlers, meeting their setbacks and forging ahead in a manner which might become more of us grown-ups.

The boys live with their father B. G. D. Bishopp on the Mile High Jersey Ranch located on Dale Creek at Livermore, Colorado. The ranch is 7500 feet above sea level, a beauty spot with its fine scenery and climate.

Mr. Bishopp believes in having his boys in the business too. They own some of the cows.

In the pastures up among the clouds, the wild deer of the Rockies run with the fawn colored Jerseys. Last season a hunter mistook Melrose Golden Grace, a little cow belonging to the boys, for a deer. When they went to drive her home they found her dead.

Heartbroken, because after all these youngsters are only six and seven years of age, they shed bitter tears. They have forgotten about it now in their hustle for caring for the rest of the herd and are carrying on like real progressive farmers.

Hitting on all four
Milking machine manufacturers will have to go some to compete with efficiency such as this. George and Robert Bishopp milking Mile High Merry Maiden at Livermore, Colorado

FERTILIZER NOTES

ADVANCING markets for practically all materials have featured the fertilizer material business during the month of September, and the average prices of the ammoniates, potash and phosphates, outlined on the following page, all show increases for the month. Potashes show a gain of 1 cent per 100 pounds on the average, this being due to the increased scale of prices which went into effect October 1. Ammoniates have advanced 8 cents per 100 pounds on the average price for five representative materials, much of the strength being the result of advances in soda nitrate and ammonia sulphate. The average price of five representative phosphates is up from 61.80 cents to 66.75 cents per 100 pounds, due to advances in bone materials at Chicago.

With price developments mainly of a bullish nature, fertilizer manufacturers have been entering the markets for increasing quantities of materials during the month of September, and trading had livened up on the entire list of materials.

The increase in potash prices, announced to take effect October 1, had generally been anticipated by the trade, and many of the larger buyers had covered to a great extent during the early part of the season, having taken advantage of the special terms made by the producers. Shipments have been coming through promptly on schedule, and the increase in selling prices was not as much of a disturbing factor in the situation as would have otherwise proved to be the case.

Unusually heavy buying of ammonia sulphate has been witnessed this fall. The situation has become so acute in regard to supplies that the leading American producers have virtually withdrawn from the export market, in addition to having advanced their prices to domestic consumers. Prices for sulphate have now reached the point where the German synthetic material, which came on the market in a large way last year, is once again forging steadily to the front as a competitor of the domestic article. Sales of the synthetic sulphate have been showing a notable improvement during the past two weeks, particularly in the South, the imported now being available at less than the figure asked for the domestic.

Increases in ocean freight rates from Chile to Atlantic ports were given as the chief causes of the advances in nitrate prices put into effect late in September. The strong market for sulphate of ammonia, however, was a contributing factor, importers being of the belief that considerable tonnage would be diverted to nitrate through the shortage of sulphate. The possibility of the coal strike spreading to the bituminous fields and thus cutting the output of

sulphate was likewise taken into consideration as a factor affecting the market price. As far as is known now, no real headway has been made in the efforts to have the Chilean Government reduce the export tax on nitrate of soda. Reports from England indicate that nitrate has lost a good deal of its market in Great Britain to sulphate of ammonia, with market authorities stressing the belief that only by a sharp cut in the price of nitrate can the lost ground be regained.

Shortage of tankage and bone has continued to hold up the prices of these materials, and aside from the market aspect of the situation, has furnished the cause for considerable discussion in trade circles. The opinion has been expressed that the American people are eating less meat than formerly, and that consequently slaughtering has fallen off. Recent increases in hide and skin quotations would indicate that this theory might explain the shortage, to some extent. The real cause for the shortage this year, however, is believed to lie in the heavy buying of these materials by makers of mixed stock feeds, who have been unusually active this year.

The prolonged drought in the Northeastern section of the cotton belt, which has attained record-breaking proportions in many sections, has given rise to some concern in fertilizer trade circles over the outlook for fall fertilizer business in the South. Advices from usually well-posted sources, however, would tend to indicate that the remainder of the South is in a prosperous condition and a "buying mood," insofar as fertilizers are concerned, and it is not believed that tonnage will suffer in the aggregate for the season. Early-season consumption of mix-

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PRICE TREND IN FERTILIZER MATERIALS

THE FOLLOWING PRICES ARE THE AVERAGE PRICES PER 100 POUNDS FOR FIVE SELECTED* POTASHES, AMMONIATES, AND PHOSPHATES. THE COMPARISONS ARE MADE AGAINST JANUARY 1, 1914, AS REPRESENTING PRE-WAR MARKET VALUES:

Material	Current	Month ago	Six months ago	Year ago	Pre-war Jan. 1, 1914
Potashes.....	$1.31	$1.30	$1.29	$1.23	$1.35
Ammoniates.....	2.66	2.58	2.55	2.27	2.14
Phosphates.....	.6675	.6180	.585	.5755	.57

* The five selections under each heading are:

POTASHES	AMMONIATES	PHOSPHATES
Kainit, bulk	Sulphate of ammonia	Acid phosphate, 16 per cent
Manure salts, bulk	Blood, dried, New York	Bones, rough, hard, Chicago
Muriate, bulk	Fish scrap, dried, works	Bones, ground steamed, Chicago
Sulphate, bulk	Soda nitrate, spot	Rock, Florida, 68 p.c. works
Magnesia, bags	Tankage ground, New York	Rock, Tennessee, 75 p.c. works

Foreign and International Agriculture.

The purpose of this department is to help us understand the scientific, practical, and industrial agriculture of other countries and the international developments which result. The editor believes that such knowledge is now of the greatest importance in our agricultural prosperity. Every care is taken to insure accuracy — both of facts and their interpretation.

What could be more fitting in starting this department than an article by Dr. Jacob G. Lipman, Director of the New Jersey Agricultural Experiment Station, and President of the International Society of Soil Science. He gives us here some significant reasons for the international study of soils.

DIFFERENT countries are more or less self-sufficient as to the supply of food. In many instances the domestic production of food staples is not only sufficient for meeting the maximum demands of the home population, but also allows the exporting of a more or less considerable surplus. Less densely populated countries like North and South America, Australia, Eastern Europe and Siberia, as well as certain portions of Africa, are the territory from which other countries may obtain a portion of their food needs. This applies also to fiber and oil crops used in the industries. Moreover, the exports and imports of forest products, of rubber and spices may properly be regarded as a part of the agricultural problem when considered in its international relations.

The relation between the production of agricultural commodities and their use in any given country has a direct effect on its national policies. Measures relating to tariffs, taxation, bounties, subsidies, technical and vocational education, unemployment insurance, old age pensions, etc., are more or less directly influenced by the status of agriculture in any given country. Countries like Great Britain, being essentially industrial and importing a large proportion of their food and fiber crops, would develop different policies as to tariffs, unemployment insurance or education than would a country like Canada where the major economic factors are agricultural rather than industrial.

As a corollary to the relations just noted, agricultural production and the national policies which it influences must be determined not only by the extent of the agricultural areas but also by the intensity of agricultural practice. The latter again is influenced by the intelligence and skill of the farmer.

Thanks to the improved methods of communication and transportation, the international contacts are constantly growing more intimate. This, in turn, allows a greater degree of specialization not only in the industries, but also in agriculture. The purchasing power of the average family is, under normal conditions, bound to rise. This offers an opportunity to the manufacturer, merchant and exporter in that suitable publicity and advertising may help to dispose of larger quantities of any particular commodity or group of commodities. Manufacturing, merchandising and trans-

portation are thus stimulated. We must reckon also with the development of more effective means of exploiting natural resources and of more efficient methods for increasing the output of manufactured articles. All of these directly or indirectly affect agricultural production which, in the long run, means soil and crop practices.

Under the conditions described, curious trends and tendencies have developed. For instance, Belgium, agriculturally one of the most progressive of the European countries, is far from being self-sufficient in respect to the food supply. Nevertheless, Belgium exports grapes and melons not only to other European countries but also to the United States and Canada. These countries, on their part, export enormous quantities of cereals, meat products, fats and fibers, but must import large quantities of rubber, coffee, tea hemp, spices, sugar, etc. Strictly speaking, therefore, no country is agriculturally self-sufficient.

The agricultural exports and imports of any country are determined primarily by the magnitude of their soil resources. These consist of the extent of the land areas, the depth and composition of the soils, the amount and distribution of rainfall, the extremes and means of summer and winter temperatures and the use of natural and artificial manures for maintaining the productive power of the land.

When we speak of the wheat belt or corn belt we have in mind zones that, from the standpoint of soils and climate, are suitable for the economical production of these crops. But the limits of the corn, wheat or cotton belts, while they are more or less fixed by climate, are more flexible from the point of view of soil type. Moreover, it should be remembered that the composition of the crop is variable and this implies

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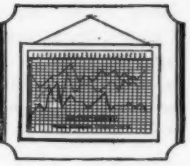
An ancient Maori grain house in New Zealand built above ground for protection from rats

AGRICULTURAL DEVELOPMENTS



By P. M. Farmer

Honey Grading Now Easy

Through the efforts of bee culture specialists and economists, and with the assistance of an inventor, the guess work has been taken out of honey grading. It is now possible to ascertain with great accuracy to just what exact grade any given sample of honey belongs.

The essential part of the grader consists of a wedge-shaped glass vessel into which the sample of honey is placed and other wedge-shaped pieces of glass of various amber shades which are placed alongside the container of the honey sample. The one who is grading honey by this method tries various amber wedges until he finds one almost exactly or exactly of the same shade as the honey. Each wedge represents a certain color grade.

The principle upon which this grading process is based was devised largely by Dr. A. H. Pfund of Johns Hopkins University who has patented the foundation principle.

It is expected that honey grades based on this system will be recommended as standard by the Bureau of Agricultural Economics, U. S. Department of Agriculture, and representatives of the Department will probably have these grading wedges in their offices throughout the honey producing sections of the country. At the present time the Bee Culture Laboratory at Washington is in position to grade samples according to color free of charge. All that is necessary is a four ounce sample of clean, well-strained honey.

Potatoes Take Advantage of Extra Space

It is usually supposed that when blank spaces occur in the potato field, on account of irregularities in planting or failure of planted potatoes to grow, that the space is wasted. This is not true according to the results at the Agricultural Experiment Station, Geneva, New York, for the discovery has been made that plants alongside these blanks produce a bigger yield than the general run of plants in the field, making up for part of the loss. Careful check-ups on the two plants adjoining the open space show that they make up about one half the yield that would have been secured if there had been no blank.

If blank spaces in the potato field include more than one hill, however, then the loss would be greater for wide spaces do not cause the adjoining hills to increase the yield in more than a single hill space. Anyway blank spaces cannot be considered total losses. It seems probable that the same principle should hold true with many other crops.

Burr Knots on Apple Sometimes Confused with Disease

Burr knots on apple trees, especially on certain varieties, have often been confused with crown gall. As a result good healthy trees have sometimes been discarded because these knots look like the

hairy root form of this gall. Charles F. Swingle of the Bureau of Plant Industry, U. S. Department of Agriculture, says that it seems possible that we need to revise our ideas regarding crown gall as symptoms may sometimes be nothing but a normal characteristic or tumors resulting from faulty union of stock and scion, or root aphis injury, or possibly other factors in addition to the infection which causes real crown gall.

It is said that English investigators long recognized the value of these burr knots in propagation by cuttings or layers. These knots which are really rudimentary roots have not been used in America, probably because of the fear of using something that was not clean material. The process of using knots consists in keeping damp moss around the limbs containing them for a few days. In some cases hundreds of roots have developed under a narrow band of moss. In some cases detached twigs containing knots can be used in propagating certain varieties.

About half of the 500 varieties of apples of the Department of Agriculture's Arlington Farm near Washington show the presence of burr knots. The varieties showing them most prominently are Buckskin, Northern Spy, Esopus, Rome and Springdale. It is suggested that they be considered in the discussion and classification of commercial apple varieties.

Grasshopper Nemas

It has been determined in recent years that in many regions of this country grasshoppers are prevented from becoming dangerous pests because of the thread-like nemas which infest them. Two varieties of this parasite have been found by Dr. N. A. Cobb of the United States Department of Agriculture and his assistants to be of great economic value. They control the birth rate of grasshoppers, including the eastern red-legged locust and its relatives and the clear-winged locust of the Northwest. In some localities practically all grasshoppers are nematized and when they are they produce few or no eggs.

Either of these important grasshopper parasites can be found in the body cavity of grasshoppers in late summer. They are several inches long and look like whitish threads. Fishermen who use grasshoppers for bait may often have noticed them. In fall they leave the grasshoppers dead and burrow into the soil where eggs are produced by one variety. The other deposits eggs in the spring on young forage plants.

The eggs on forage plants are swallowed by feeding hoppers and develop with extreme rapidity. The eggs that hatch in the soil hatch out nemas which enter the grasshoppers by means of a spear-like organ.

Attempts to control grasshopper plagues are being made by moving infested hoppers to regions where they have not become infested naturally. Dr. Cobb says that the work of colonizing the nematized insects is handicapped because of general lack of knowledge of the habits of grasshoppers.

Sugar Beet Insect Carries Disease Virus

Plant pathologists of the Department of Agriculture have found many new facts regarding the importance of leafhoppers in carrying the virus of curly top, a very destructive disease attacking sugar beets in the West and Northwest. In some regions beet growing has been practically abandoned for a time because of these losses.

REVIEWS

Extension Work in Agronomy, 1923—U. S. D. A. Circular 343.

To translate the results of research work into more economical crop production is the work of the extension specialists in agronomy. That effective work is being accomplished is shown by the survey of the results contained in the above circular. Long-time demonstrations carried on by farmers numbered 161,456 in 1923, an increase of 48.2% over 1922. These demonstrations were divided between soil and crop projects.

Included under soils were two major groups — 1st — demonstrations covering the use of lime, and, 2nd — demonstrations with fertilizers to encourage the use of high quality goods.

County agents reported that 170,059 farmers in 47 states followed their suggestions for the use of commercial fertilizers on more than 4,000,000 acres.

Crops were divided into two important lines of work. The production of food for live stock and improvement of seed.

The development of extension work in agronomy is also discussed. Important conferences of agronomy extension workers have been held during the year — one to discuss subject matter, the other to study methods.

The importance of extension work in agronomy is shown by the fact that 322,427 farmers were influenced to change their practices.

This work was carried on in 48 states at a cost for the year ending June 30th, 1923, of $388,279.

An important feature of the year's work was conducting campaigns. Demonstrations alone were not considered sufficient. Three of the important campaigns were the clover prosperity compaign in Missouri, the home-grown roughage campaign in Wisconsin and the alfalfa dairy campaign in Michigan.

Another important feature of the work was the improvement of pastures by means of the use of fertilizers, cultivation and reseeding. This work was carried on in 45 states.

The work with various crops — seed improvement and other matters are discussed.

The bulletin is of value and interest to all county agents and extension workers.

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Effect of Fertilizers on the Number and Size of Potato Tubers (Reprint from the proceedings of the 11th annual meeting of the Potato Association of America, December, 1924.)

For many years the Agricultural Experiment Station of Ohio has grown potatoes in 3 year rotation with wheat and clover.

The effect of the fertilizers used in this rotation has shown that the increases due to nitrogen have been relatively small — the effect of phosphates were also comparatively small — but varied. Lime was used on these plots which may, in a measure, have accounted for this.

Applications of potash gave large increased yield. Where no potash was used the deficiency was clearly evident.

While the effect of fertilizers on yield has been noted for many years, the author has made an interesting study of the effect of the nutrients on the number and size of tubers.

Briefly, the nitrate increased the numbers of tubers per plant — but no effect in size.

Potash had a marked effect in increasing the size of tubers—but no definite influence on the number.

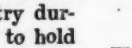
Phosphate had in this instance little effect on either the size or number of the tubers. It is pointed out, however, that lime was used and the phosphate may have been converted into an insoluble form. It would seem, therefore, that the effects of phosphates could hardly be considered conclusive.

This study is of value as a contribution towards determining the effect of plant foods on the quality of the crop as well as the yield. It is in this direction undoubtedly that more research work is needed.

Fertilizer Notes

(*From page* 28)

tures has been of quite satisfying volume, it is reported, and manufacturers anticipate a continuance of this situation for the balance of the fertilizer year. Farmers will be confronted with higher prices for their mixtures this season, owing to the material increases in the prices of some of the ingredients since last year, and the manufacturers generally expect that some few changes in formulae will be made in the industry during the season in an effort to hold down as much as possible the ultimate cost to the farmers. Last year, it will be recalled, there was considerable resentment on the part of many of the Southern farmers, and their political representatives, when the fertilizer manufacturers decided that they would end their liberal credit policy and not only put into effect stricter credit terms but prices higher than those prevailing during the preceding year. While there is no desire on the part of the mixers to see higher prices, the fact that the fertilizer industry has emerged from a prolonged period of depression and that prices are again on a basis of cost plus a reasonable profit, instead of the "distressed" basis so much in evidence during the several years immediately following the war, has naturally made for higher production costs and thus increased selling prices. One result of the firmer market is expected to be a further gain in the consumption of high test mixtures, as the manufacturers expect that with higher prices prevailing it will be easier to convince the farmers of the economy of using the higher test plant food wherever feasible.



Foreign and International Agriculture

(*From page* 30)

certain economic relations. Indeed, so large are the economic values involved that the student of soils is expected to establish a more definite basis on which economists and statesmen may develop important national and international policies.

In recent years our knowledge of soils and soil fertility has expanded in a substantial way and, in some directions, to a remarkable extent. To the general progress of chemistry, physics, botany and microbiology, we owe

methods and points of view that have enabled the student of soils to analyze more critically the factors underlying soil fertility. We are better able to define the meaning of soil type and to indicate its relation to crop production. The students of soils in different countries are coming to recognize more and more keenly that the methods of studying soils must be standardized to a point where the results obtained in soil investigations, whether they deal with physical, chemical or microbiological properties of soils, be comparable. The significance of this need hardly be dwelt upon. In order that we might understand the future as well as the present potentialities in agricultural production, we must be able to measure the soils of different countries and of different continents in the same terms. We must be able to indicate the increase in yields which might be expected under any given climate conditions when suitable crops and suitable methods of tillage and fertilization are introduced. We must recognize the ultimate limits of any given crop and the ultimate change in composition of the crop as affected by soil treatment. This cannot be done except through coordinated effort by soil investigators the world over. When such coordination is farther advanced the economist and statesman will see more clearly the problems that confront their own as well as other countries. They will, to that extent, be in a better position to define policies which would bring about not only a greater degree of material prosperity but will also encourage international good will and understanding, and by the same token discourage international friction and misunderstanding.

The organization of the International Society of Soil Science, effected last May during the sessions of the Fourth International Conference of Soil Science at Rome, is, from the point of view of the facts just noted, a significant undertaking. International committees have already been appointed whose responsibility it will be to unify the methods of soil classification and mapping as well as of physical, chemical and microbiological study of soils. The forthcoming International Congress of Soil Science, which is to be held in Washington in the early summer of 1927, will serve as a further stimulus to the organization of soil research on an international scale.

Potash Starvation Symptoms

(*From page* 7)

likely to need special potash fertilization. All soils which have been depleted by many years of exhaustive farming are likely to need potash fertilization.

The following kinds of soil frequently lack available potash for the growing of clover and alfalfa, and symptoms of potash starvation should be looked for in crops growing on them. (1) Sandy soils. (2) Depleted sandy loam and silt loam soils. (3) Dark colored low-land soils. (4) Mucks and peats.

For clover, 100 to 200 pounds per acre of a potash fertilizer should be used. For alfalfa, this may well be increased to 300 to 500 pounds per acre. The potash fertilizer is best applied after plowing and just previous to sowing, and should be thoroughly worked into the soil. It may also be applied as a top dressing in the fall or spring after the crop is started, in which case it should also be harrowed or worked into the soil. There is no danger of loss of potash by leaching.

Motorists: Yellow Means Look-Out!

(*From page* 10)

Agriculture William M. Jardine said:

"Communication is the great equalizer. It destroys animosities, aids understanding, promotes the accord of nations, and contributes to the happiness and prosperity of all who enjoy its unrestricted benefits. In the motor vehicle and improved highway there is promise of substantial betterment of communication and transportation everywhere.

"The Department of Agriculture has taken part in the work of highway betterment in the United States practically since the inception of the good roads movement. Its Office of Road Inquiry was created in 1893 for the purpose of studying the highway needs of the country and recommending the means which should be adopted to meet them.

"Until 1916 it carried on continuously a careful study of road building materials and processes, and by education and example imparted the information to road builders throughout the country. Since 1916 it has played a more active role in connection with the building of Federal-aid highways and is now engaged in the improvement of 177,000 miles of interconnected highways in remarkably harmonious cooperation with State highway departments.

"At the same time the department has not abated its efforts in research, but has applied itself with increasing intensity to problems of highway construction and transportation which have grown in importance with the increase in numbers of motor vehicles.

"This information the department will gladly extend to the Latin American Republics. In many respects the problems with which they will have to deal correspond with those which we have already passed, and I believe that for many of these problems we may offer them a solution ready-made. In thus placing the service of the department at the disposal of the republics of the new world I do so in the spirit of cooperative friendliness. Where we give we hope also to receive much that is valuable of advice and suggestion for the solution of our own problems of highway transportation."

The members of the commission appointed by President Coolidge are H. H. Rice, vice-president, General Motors Corporation, Michigan, chairman; Charles M. Babcock, Commissioner of Highways, Minnesota; A. N. Johnson, dean, Engineering College, University of Maryland; William E. Hull, member of Congress from Illinois; Frank Page, chairman, North Carolina Highway Commission; Dr. G. A. Sherwell, secretary-general, the Inter-American Highway Commission; and Thomas H. MacDonald, chief, Bureau of Public Roads, United States Department of Agriculture.

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North Carolina Leads in Leaf Value

North Carolina still claims first rank in the total value of the tobacco crop among the States of the Union, although Kentucky leads in acreage. The total value of the crop last year was $71,807,000, the Kentucky crop being almost the same.—U. S. Tobacco Journal.

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City Man—"I don't understand it. This seems to be a very modest looking cow, but the farmer said she was fresh."

Boys Eat Up Four Year Experiment

¶ A little story which draws its own moral.

A BUNCH of New Jersey boys recently had a corn roast. It was a royal feed surrounded by all the glamour of such a boyish stunt—corn that had been swiped, fire in a sheltered nook, and lowered voices to avoid detection. The corn was fine, big luscious ears, and it had been easy to get from the experimental plots of the College of Agriculture. The boys didn't even have to look around for sticks to use in roasting the ears, there were nice thin ones right in the fields.

This makes a little story reminiscent of our boyhood days. But like every other story there is another side, and in this case that side happens to be especially sad. The corn which the boys ate and the sticks which they pulled up ruined a four-year experiment in improving sweet corn.

Commenting upon the incident, Dr. Jacob Lipman, dean and director of the station says, "This just serves to illustrate with what difficulties the path of the investigator is beset. Experiment stations located near urban centers feel the disadvantage of having unwelcome visitors. It is the thoughtless and irresponsible persons, most of them boys, who may seriously interfere with the progress of experiments in plant breeding and soil fertility.

"It is difficult," Dr. Lipman goes on to say, "for many thoughtless people to understand how a few apples or a few ears of corn might affect the value of investigations. It is frequently impossible to patrol experimental orchards and field plots effectively enough to protect the experiments against more or less serious damage.

"We can only hope that education and a better understanding of the significance of the contributions that the investigator is trying to make toward the progress of the human race will tend to offset the temptations that some people may have to take material of slight intrinsic value but of very large potential value from the standpoint of both science and practice."

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Estimating the Quantity of Grain in Bins

People having occasion to know the quantities of grain in bins at different times are constantly confronted with the problem of getting accurate estimates quickly. Miscellaneous Circular 41, "Estimating the Quantity of Grain in Bins" by E. N. Bates, Bureau of Agricultural Economics, just issued by the United States Department of Agriculture provides a means of making such estimates.

A chart for desk or wall use has been worked out to reduce the necessary work of getting an accurate estimate. Capacity of bins in bushels of any kind of grain are shown by lines and scales.

A Round-Up on Peat Soils

(*From page* 13)

the percentage of sugar increased or decreased in accordance with the treatment. It was also shown with potatoes that the number of culls and seconds was decreased with proper treatment, likewise the sweetness of eating carrots and parsnips, and in this connection the percentage of sugar and not the absolute amount is the important point. All of this work was the result of careful field experiments.

After Dr. Harmer's talk, the session adjourned to meet again at the Chandler Marsh where there were marsh plowing demonstrations and experimental plots. The chief feature of the plots was a series of experiments with high and low fertility, each series having a variety of truck crops. The high fertility plots have a maximum of 750 pounds of acid phosphate and 750 pounds of muriate of potash. The low fertility plots got 300 pounds of each. The proportions of these were varied, the different treatments showing marked difference in yields.

In another series experiments with different amounts and different carriers of nitrogen were made, the phosphoric acid and potash being kept constant. On other plots the nitrogen and potash were kept constant and different carriers of phosphoric acid were tested.

As the wind had blown out the seed in June, as many as three and four plantings were necessary. In spite of this, however, excellent growth had been maintained and the plots provided a very interesting object lesson in the need for selecting the right fertilizer materials.

On this soil, both phosphoric acid and potash were needed, the potash showing a marked effect especially on potatoes and sugar beets.

Michigan entertained in its Agricultural Hall

The next two days were spent in instructive tours to the more important muck soil areas of Michigan. Many local farmers joined the party, and the first place visited was the 12,000 acre Gunn Marsh to see the production of onions.

By actual acidity tests, the soil in Gunn Marsh is medium acid, but lime is not recommended unless the soil gets more acid. The fertilizer practices vary both in formulas used and the methods of application. The best formula and methods of application have yet to be worked out for this marsh.

One grower at the present time is using 300 pounds per acre of a 2-8-10 under the row and 200 pounds muriate of potash per acre broadcast. Other growers used a 2-16-2 under the row and 2-8-16 broadcast. Still others on marsh muck soils an 0-15-20 in various amounts. It is evident that both phosphates and potash are necessary at this marsh.

The A. M. Todd Company's mint farm at Mentha came in for the next visit. Their mint still is new and supposed to be the finest in the world. It is the result of long experience which is shown in the labor-saving devices which have been introduced in its building.

Messrs. Stroud and Woodham kindly showed the party over the farm and explained the process of distillation. This farm shows to what a high degree of efficiency crop production on muck soils can be brought.

The college celery plots at Kalamazoo were inspected, plots which are giving valuable results for the muck farmer.

At the 10,000 acre Decatur muck area the chief feature of interest was an inspection of the fertilizer experimental plots. Dr. Harmer deserves great credit for the 25 experimental centers where plots have been established and for the care and maintenance of these plots. Undoubtedly they will yield valuable information regarding the fertilization of the muck soils of Michigan.

The Decatur experimental plots are in a hardwood muck soil. The first series are different mixtures of phosphates and potash. The heaviest application made is 1500 pounds of a 3-8-24. There are also variations in the amounts of potash and the amounts of phosphates. Other series are used to determine the best methods of applying nitrogen, different sources of nitrogen. A phosphate series compares the different forms of phosphates and tests the best time of application. The plots are now in celery.

Visits were also made to the Beebe muck farms at Niles, the experimental plots at Holland and the muck soil areas at Zeeland, Hudsonville, and Grand Rapids. Addresses by different authorities were made at all of these places to the numbers of farmers who had gathered.

At the election of officers held during the convention, Dr. Paul M. Harmer of the Michigan State College, East Lansing was made president of the American Peat Society for the coming year.

Mr. W. C. Steenberg, 228 South Main Street, South Bend, Indiana, is the new first vice-president; Mr. B. F. Haanel, Canada Department of Mines, Ottawa, Canada, second vice-president. Mr. Charles Knapp of 2 Rector Street, New York, is secretary and treasurer.

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THE WHOLE SECRET

Benny (having difficulty in teaching little sister to whistle)—"Aw, just make a hole in your face and push."—The Furrow.

About Ourselves

BETTER CROPS is a monthly pocket full of information for men interested in more profitable crop production. It is a source of information as well as a mouthpiece for the research worker, the commercial man, and the advisory agent.

The aim of the magazine is to stimulate a more thorough knowledge of soils, crops, and fertilizers. It is edited with the idea of disseminating such information as is sound and practical. There will be no publication of preconceived ideas and at all times the whole and not the selected truth will be considered.

In doing this BETTER CROPS hopes to become a common ground for the interpretation of mutual interests of the scientific and agricultural business groups, nationally and internationally, especially as their activities relate to the use of commercial fertilizers.

We ask for suggestions and contributions from our readers for we know that only in that way can the magazine serve in its fullest capacity. Payments for manuscripts are made upon publication.

Subscription price of BETTER CROPS is 50 cents per year, 10 cents per single copy. Advertising rates may be secured upon application.

BETTER CROPS PUBLISHING CORP.

10 Bridge Street New York

How Can County Agent Work Be Improved?

(*From page* 18)

Along their own lines they were above par, invincible — but they couldn't see over the college department fence wherein they received their major graduate training. One of the potato experts resigned and later made a hit driving out potato diseases. The apple man went to work for an insecticide company and succeeded. The cattle men met reverses in the recent era of live stock depression, and as they knew little of soils or crops (or even of hogs, horses, and sheep, for that matter), they, too, quit with a curse on public service.

LACK of sympathy and lack of wide interest in all growing things — bees, bulls and bears — will put the crimp in a county agent and give him the one-track mind habit sure as death and taxes. College specialization and too much college dictation of plans and policies of the graduate when he goes afield as county agent may be one big cause for this impediment. A man can be wise in one thing, but it must not prevent him from being well informed on many other things.

Both community and county-wide results hold interest in a county agent and his work. To flirt with any one section of a county while more remote sections are left alone is to create a spotty impression.

One of the best diplomats in county service in our state started right in to organize his county by school districts and townships — not on breed lines alone, but on lines of common farm life interest, including social clubs and everything tangible. He realized that the farm home is the reason why

men and women are farming. It isn't because of the acidity test, the orchard spray ring, the iron-clad contract, or the pure-bred sire.

He could see the broad, human side of it. He did not let the tools of the trade obscure the folks at home. Today he is entrenched, as one might say, so firmly that explosive couldn't blast him out of his bailiwick — unless he wants to go, and then he must agree to find a successor equally good.

The fearless county agent gets ahead and does work that is effective and valuable. The cringer, the issue dodger, and the apologizer is out of luck.

The fearless county agent, if broad gauged, will not take long distance dictation as final because he knows what his clients need. The fearless man will not be afraid to welcome commercial advice and recommend the best commercial products, beause the commercial laboratory is sometimes closer to real farm needs than the academic laboratory in which he got his training. The fearless man will promote the soundest marketing and stock breeding campaigns within his region regardless of criticism.

To apply broadness and bravery to each section of the county is a matter of detail, but these two qualities are above all essential to effective and valuable county agent work.

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World Soil Experts Will Gather Here

(*From page* 8)

establishment of an office with the International Institute of Agriculture.

A General Congress must be summoned at least every five years to investigate the scientific work, to have general control of the Society, and to elect officers.

The Review to be published by the administrative office will be a scientific journal for the publication of original work in this field. It will also contain a regular series of special reviews and reviews in five languages, English, Italian, French, Spanish, German, of the more important recent publications and general information concerning the association.

IT is felt that a beginning has been made in the work of bringing uniformity and fixed standards into this agricultural science.

Accepted by the scientists of the different nations, this uniformity of study and research should bring about better results and closer collaboration on general problems.

A meeting will be held in Holland early in the spring to choose the delegates to attend the Congress held in the United States. Preparations are already starting for the entertainment of the visitors in America. They will travel to the sections of this country of most importance from the viewpoint of their science.

The present officers of the International Society of Soil Science include:

Dr. Jacob G. Lipman, President, New Brunswick, N. J.; Prof. Dr. D. De Angelis d'Ossat, Vice-President, Rome, Italy; Dr. Benjamin Frosterus, Vice-President, Helsingfors, Finland; Dr. D. J. Hissink, Secretary-Treasurer, Groningen, Holland; Prof. Dr. F. Schucht, Editor, Berlin, Germany; Dr. G. Borghesani, Librarian, Rome, Italy; and Francisco Bilbao y Sevilla, Representing the International Institute of Agriculture, Rome, Italy.

The Potash Situation

(*From page* 15)

and in some instances potash alone. All of these are recommended by three experiment stations. But it is important to find out which fertilizer treatment is the most profitable for any particular farm. For instance in Minnesota in 1924 where fertilizer experiments were conducted on four farms, no two gave similar results.

Taking up the more practical side, we come to the production, price, and methods of selling potash.

So far as production is concerned, there is plenty of potash being mined at this time. The German mines furnish the largest supply. The French mines and American sources also contribute to the potash used in the United States.

The price of potash now is lower than it was in 1913 or any time since. In 1913 the market price c. i. f. for muriate 80 per cent basis in bags as quoted in the *Oil, Paint and Drug Reporter* was $38.05 per ton. It is now quoted from $31.41 to $34.90 per ton. It should be noted that this is the market price c. i. f. and when retailed in small quantities other charges must be added for inland freight, storage, and rehandling.

The price, however, in comparison with other fertilizer materials, is very reasonable and permits an adequate profit to be made on its proper use.

We are often asked if we sell potash direct in small quantities as one bag or so. In answer to this we would say that the method of marketing is to sell through the manufacturers and mixers. These agencies make resales in any quantity from one bag up and muck land farmers should be able to obtain all the potash they require from these sources.

In answer to questions asked me at various times, I personally believe that a mixed fertilizer industry will always be a basic industry in this country. The shortage of labor on many farms—the short growing season in many places—and the psychology of the buyers—are reasons why there will, in my opinion, always be a demand for mixed fertilizers. The raw materials should also be available at reasonable prices for the farmer who needs them for his particular soils and conditions.

The most constructive attitude —in my opinion— is to cooperate to the best of our ability in helping to solve the problems of the industry in meeting the needs of the farmer.

In conclusion, potash is a most important plant food for crops on muck and peat soils because, as we have already pointed out, it not only increases the yields but has a marked effect on quality, about which we need to know a great deal more. It is our policy to actively support this necessary experimental work and to make available to the farmer at reasonable prices all the potash in good condition that he needs for the most profitable crop production.

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Big Business Apple Advertising

(*From page* 17)

At first many small classified and reading advertisements were used, and while this brought good results, a flashy weekly program of advertising was determined upon in the fall of 1924, which included the small advertisements and in addition weekly half and full page

space was taken not only in that county but adjoining counties. Yes, this cost lots of hard earned dollars, but the question is, *did the investment pay?*

If you could devise a means of bringing 2000 people to your orchard in a single day when you had plenty of apples and cider on hand, could you sell them? Mr. Berg did! It took several traffic directors and quite an army of salesmen to handle the throng of cider, apple and vinegar customers, but he did it so well that his entire crop melted away like magic. Sometimes the week's single glass cider sales more than paid that week's advertising bill, and the former barrel and cold storage method of selling the first grade fruit was joyfully done away with. Several cars of Grimes Golden had to be purchased in addition to take care of the big demand for the "Berg cider, (that) makes a broad smile wider."

It was not a startling discovery that hundreds of people in that section liked and wanted to buy good cider and well grown and graded apples, but it did demonstrate the necessity and profit to be derived from telling the public what he had for sale and how to get to it. The product was all that was claimed for it and the customers flocked back and brought their friends with them. Mr. Berg said: "Many came out of curiosity and went home with a bushel of apples and a gallon of cider."

The newspapers for counties around sent their star reporters and gave the Berg Fruit Farm many columns of front page stories, the most effective sort of advertising free of charge. Everyone that owned a car for many miles around eventually drove out to Berg's to see the crowd and verify what their neighbor had told them about "The hundreds of bushels of apples on the hillside," and the crowds that frequented the orchard daily.

A very occasional roadside sign and a few dollars in obscure advertising in one or two local papers is the average quota of far too many orchardists. Mr. Berg's methods would have no doubt been less effective in many other communities, but the fact remains that his methods did solve his most difficult problem—that of marketing his crop and doing it at a good profit. Almost as soon as the picking season was over his money was in the bank and he had added hundreds of satisfied customers that will be of unknown future value in years to come as his young orchards begin to increase the yearly production.

Twenty Varieties of Cotton

(*From page* 20)

"I would mark the blooms and watch to see how many days it was from the blooming period until the boll opened as the period between the bloom and open boll often determine the yield. A quick fruiting variety will make more per acre on the same rainfall."

Mr. Little then gave a valuable tip to the cotton farmer. He said:

"Also a variety with smaller leaves will thrive on less moisture than one with large leaves, as the one with large leaves presents such a large space for water evaporation to take place. This

was brought out very distinctly in my experiments the next season, and most important is the size of the bolls. I had some cotton that had been boosted for its large bolls. It was advertised that 40 bolls would weigh a pound. But when grown under test it took 95 bolls to weigh a pound.

"I tested all of my varieties for large bolls and on an average 65 bolls made a pound. I had one variety that 45 bolls made a pound. I also sampled it for staple length. I found in my experiments a large majority of the cotton runs from seven-eighths to one inch. I also found that a large seeded cotton had a better staple length than small seeded cotton.

"In my work with cotton I have found that I opened a storehouse of information if I would only take heed of the different things that come to hand in testing different varieties. There is a lesson to be learned every day, if we will only heed it.

"I have done some breeding and produced new strains of cotton. This year I have planted 20 varieties in my test on a test. These are being grown on a competitive basis. Last year I sold all of the seed I produced from my best varieties and when I had sold all of my seed I ordered several hundred bushels for my neighbors. They have seen the great value of good seed when grown side by side with 'just cottonseed.'"

Mr. Little urges the farmer to study the condition under which cottonseed produces in his State. "Some people order seed from the states east of the Mississippi river and expect it to do equally as well when grown in the western part of Texas. And when the crop doesn't turn out well, they blame the seed. So when you buy seed, get it just as close to home as you possibly can. Buy the seed that the staple is an inch or more in length and try and get the variety with all of the good features you can. Test it out with other varieties as that is the only way to see if a variety is adaptable to your climatic conditions. Some varieties do best the second year."

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Abbott Goes to N.F.A.

John B. Abbott, professor of agronomy of the Massachusetts Agricultural College, has just been appointed field agronomist for the northern states by the National Fertilizer Association.

Mr. Abbott, whose early training included two years of county agent work in New Hampshire followed by three years in Massachusetts, comes to his new position fully equipped for advisory work. He is the author of various papers on experiment station work, has written a great deal for farm papers, and has owned and operated two farms.

He is a member of the honorary scientific society, Sigma Xi.

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Adam had the first Radio—he made a Loud Speaker out of his spare parts.—Arkansas Banker.

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What's the use of having the right of way if the other fellow don't know it?—Arkansas Banker.

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An Eastern farmer, who had moved to California, had heard that his neighbor raised unusually large potatoes, so he sent his hired man over to get a hundred pounds.

"Go right back," said the Californian, who wanted to impress the stranger, "and tell your boss that I won't cut a potato for any man."—Team-Work.

On the Reasons for Striving

(*From page 4*)

who rush madly about, craftily watching a chance to gouge a fellow mortal, or step ahead of him in the line, wickedly jabbing him with the elbow as they bore in—after a day of this, I too wonder what it is all about.

It all seems so small, so childish, so sort of useless.

The petty tricks that underlings use to undermine the overlings: the larger but still petty tricks that bosses bring into play to oust the clerks for whom they no longer have use!

The mere struggle for existence does not create these situations where human ants must push and shove each other; there is room aplenty for all—*friendly* room for *friends.*

Jealousy accounts for some of these situations.

"The mere desire to get ahead, to progress, puts in man the spirit of push which in his mind justifies toppling the other fellow out of the way," answers the pseudo-philosopher.

"But what put in man this desire to get ahead?" I ask, and the echo answers with a foggy wall of silence.

In plain words, why should any man strive for what we call worldly success? Why should not all be simple folk—fishermen like the man the captain watched, catching our meals as we need them and working only enough to capture what clothing and shelter we need?

WHY should we not all be mental vagabonds and tramp the surface of this rare and preposterous earth, sleeping in the sun, speculating on the stars, and shuddering in delicious silence at the wonders we see around us?

Comes an answer: "Fool! Man must provide for his old age and for his family. He must work in this world in order to get together what he needs. He must struggle for these things; for nothing worth while is gained without effort!"

TO which I retort: "No answer at all! That is merely the copy-book reply given to sophomorish minds—the pap fed out to recalcitrants to hold them surely in civilization's line."

"Man," I say, does not have to provide for his old age—his tribe has always done that for him. His friends and relatives will see that he is warm, protected and fed when he is no longer able to warm, protect and feed himself."

Pride alone (and unwillingness to accept charity), accounts for those down-and-outers we see today. They could be warm, protected and fed in a moment should they put themselves on our charity.

Man, imitative by nature, saves for his old age, not because he has thought it all out and sees the necessity for it, but because he sees others do it, and because he has been told from childhood that it is the thing to do—that to go on living day by day, letting the morrow take care of itself, is wrong.

But I have seen many a contented hobo with a big appetite at 78—an appetite which he is always able to find a way to satisfy. Most tramps are hale, hearty, and happy. They have seen the world. They are well fed, warm and clothed in some fashion or other. They are seldom sick.

I am not advocating, Hortense, that the human race degrade itself into a tribe of tramps; I am merely argufying with you to prove that the real urge that is driving us all on to bigger and better things has no foundation in the mere "providing for old age."

It goes much *deeper* than that!

The pseudo-philosopher says in his answer: "Man must work in this world in order to get together what he needs."

Well, Hortense, what *are* man's needs?

Let's take three men and compare their needs—John D. Rockefeller, Jeff McDermid, and that chap in the dugout canoe who, when he finds he's hungry, catches his own supper.

These three men must eat, they must be clothed, they must be kept warm, they must have protection from the elements.

So; food, clothing and shelter. What else does any man *need?* I ask, not what would man like to have but what *must* he have to be happy and comfortable. Nothing more. Anything added to these three simple elements in the nature of additional comforts or enjoyments is futile.

So thus we see that it is not true that "man must work in this world in order to get together what he needs," for the simple fisherman *has all of these without working!*

And now our philosopher says, "but nothing worth while can be gained without effort." This is all true enough if we but agree as to what is worth while. Your ideas and mine on this score may be as far apart as the poles.

I know men, sterling souls, who have little of what the world calls ambition—men whose ideas as to things worth while include only hunting, fishing, lazing round in the sun and dreaming.

"Lazybones!" you would call at them. But they have a homely philosophy which can not be successfully attacked or undermined. "Fame," they say, "is a greased pole which you climb to win a $2.00 prize, ruining in the climb a $40 suit.

"Why struggle and strive!" they implore. "Why earn ten thousand a year and lose your soul! Why sweat to build a business and fail to see this glorious world! Why waste your youth reading Courses in Mathematics and Science when purple days await your embrace in far Siam! Why fight the throng for sustenance when it will drop in your lap unearned in countless, quaint quarters of this globe!"

"What is it all about? they cry. "Is it worth the struggle and if so, why? Where do we go when we die and ——"

Questions, questions, questions —the universal question marks.

Man, with the heritage of the ages thrown unasked in his lap, invents new comforts — not for himself but for *others.*

He strives to build a business, not that he alone may live in comfort in his old age, but that his *family* may fare well, that his employees and associates may eat and grow strong.

Man writes books not for himself to read, for he knows before he starts, what will go between the covers, but he writes to instruct, amuse or entertain *others!*

HE works and struggles and strives because unconsciously and unselfishly he wants to leave the world better than he found it. His work he leaves as a heritage to unborn generations. He bequeaths some of the fruits of his genius to other men whom he has never seen and will never see—those who are to come after in the countless run of generations.

He feels a sort of gratitude to those who preceded him on this preposterous globe and he is willing to pay his debt to the generations he has inherited by striving in turn to leave the world better than he found it.

So now we get the truth: *Man struggles to get ahead not because he selfishly wants to supply his own needs and comforts but because subconsciously he is actually unselfish.*

In all of this struggling, jostling and pushing, and attempts to help our fellow-men and leave the world a heritage of good, let us not forget to make friends. Let us clasp hands in a bond of love and service.

It is Today.

But Tomorrow?

Ah, Tomorrow may you not forget the songs I sang you yesterday and hear only my harsh voice of today. Tomorrow may you not cast me out of your life —because you have found a new friend you like better.

That is "what it is all about" *my friend!*

PIGS IS PIGS

But when it comes to being owned by one of the 50,000 odd boys and girls in the United States engaged in pig club work, a certain amount of porcine refinement must be observed. This little pig is receiving a manicure.

THE EXTRY HAND

loosened his overalls a bit more at the shoulders and waded into the second helping of chicken. "Yessir," he remarked, "I've seen lots of hard work in my time, an' I've done a lot of big things. Take fer instance three weeks ago, when I painted old Boggs's barn. That's about the biggest thing of its kind in the country."

"Pass me some more gravy," he continued, eyeing with alarm the rapidly diminishing supply of homemade dumplings. "As I was a-sayin' Mister Jimson, I'm comin' to your farm with a great deal of experience behind me, an' I'm determined to make good on this job. If you'll kindly pass me the biskits, Miz Jimson, I'll finish 'em up and git 'em out of your way. If that ain't showin' a helpin' hand, I dunno what is."

"The womenfolks all like me because I've got a kind of a way with the ladies, if I do say it, an' the horses allus like me because I rest 'em every round, an' my bosses has allus liked me because I'm so easy on the machinery. Why many's the mower I've drove all summer, Mister Jimson, without ever havin' to sharpen the sickle."

"That all might be so," said Jimson, cautiously, "but can you get any work done? That's what I want to know." "Work?" queried the Extry Hand with gusto, between bites of pie. "Say, Mister Jimson, at the last place where I worked I broke four hoe handles in one afternoon!" "Hoeing so hard with 'em?" asked Jimson. "Well, no," reluctantly admitted the Extry Hand, "leanin' on'em."

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We can hardly wait for the day when Henry Ford will make tin nickels at two cents each.

❖❖❖❖

Some are born to publicity, some achieve it, and others are quoted in kidney pill advertisements.

❖❖❖❖

This Month's Limerick

A plump old cornhusker named Jim
Once embarked on a much-needed swim;
While he kept his resolve
He began to dissolve,
And when he crawled out he was slim.

Fertilized with 2½% nitrogen, 9% available phosphoric acid, and
11% POTASH
Fertilized with 2½% nitrogen, 9% available phosphoric acid, but
NO POTASH

More than one hundred dollars extra on an acre of strawberries.

Time and money put into the preparation of the strawberry bed is time and money well spent, for they produce best yields when grown in well-drained, friable soil—rich in available plant foods.

High analysis mixed fertilizer is a profitable source for the necessary available plant foods. Mr. Pitcher, of Tangipahoa Parish, Louisiana, reaped $109.66 *extra income per acre* when he applied 2½% nitrogen, 9% phosphoric acid, and 11% potash, at the rate of 1200 lbs. per acre.

The Agricultural Extension Division of the University of Florida recommends for strawberries about one ton of fertilizer per acre, in two or three applications. First application, when plants are set out, analyzing 5% ammonia, 8% phosphoric acid, and 4% potash. Second application, when plants are blooming, analyzing 4% ammonia, 8% phosphoric acid, and 9% potash. Some successful growers are applying an additional dressing of 80 to 100 lbs. sulfate of potash early in January, and in March, a top dressing of 100 lbs. nitrate of soda. Where plants are very closely set, a mixture of 6% ammonia, 8% phosphoric acid, and 12% potash, at the rate of 3000 lbs. per acre, is also being used with very profitable results.

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